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A new species of *Pterotiltus* Karsch (Orthoptera, Acrididae, Oxyinae) from Equatorial Guinea

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Abstract

The genus *Pterotiltus* Karsch, 1893 currently contains 18 described species. The genus is distributed in West, Central, and East Africa from Ghana to the Congo basin as far as Western Uganda. *Pterotiltus bioko* **sp. nov.** is described from specimens recently collected on Bioko Island in Equatorial Guinea. A key to *Pterotiltus* species is provided.

Keywords

Caelifera, grasshopper, humid forest, new species, taxonomy, West-Central Africa

Introduction

Oxyinae Brunner von Wattenwyl, 1893 is a subfamily of Acrididae (Orthoptera) known from Africa, Asia, and Australia. It currently includes 230 described species of 38 genera (Cigliano et al. 2024). Diagnostic characters of this subfamily include a subconical head, a short fastigium on vertex, a sulcate frontal ridge, a conical prosternal process, an open mesosternal interspace, the lower genicular lobes of the hind femora produced into spines, and the distal sternites of the abdomen with tufts of short hairs (Hollis 1975). Fifteen Oxyinae genera are in the tribe Oxyini Brunner von Wattenwyl, 1893, and four other Australian genera in the tribe Praxibulini Rehn, 1957. The African genera *Parapterotiltus* Oumarou-Ngoute & Rowell, 2024, *Cylindrotiltus* Ramme, 1929, *Gerista* Bolívar, 1905, *Badistica* Karsch, 1891, *Caryanda* Stål, 1878, *Digentia* Stål, 1878, *Pterotiltus* Karsch, 1893, and thirteen other Asian genera are currently not assigned to the tribal level (Cigliano et al. 2024). In terms of morphology, *Pterotiltus* is close to *Oxya* Serville, 1831 (Hollis 1975), the type genus of the Oxyini. Both genera have epiphallus with divided bridges usually with two pairs of lophi.

The genus *Pterotiltus* currently contains 18 described species, all from Ghana in West Africa through Cameroon and the Congo Basin to Rwanda and Central Uganda (Rowell and Oumarou-Ngoute 2025). The species of this genus live in the equatorial wet-forest belt and are distributed at an altitudinal range from sea level to more than 2000 m.a.s.l. All *Pterotiltus* species are flightless and live on the herb layer of forests. They are characterized by the following male phallic characters: epiphallus with a divided bridge, ancorae absent or greatly reduced, and large curved lophi; smaller inner lophi are also present in some species. The female ovipositor valves are smooth and rodlike, adapted to the specialized oviposition sites (Hollis 1975); in *P. hollisi* and probably all other species, oviposition is epiphyllous on the food plant (Rowell 2005). Here, we describe a new species of *Pterotiltus* from Bioko Island in Equatorial Guinea; an updated identification key for the species of *Pterotiltus* is also provided.

Materials and methods

Field sites.—Collections were made from 15 December 2023 to 19 December 2023 by H. Song, J.B. Linde, B.M. Woo, R. Mariño-Perez, and C. Oumarou-Ngoute on Bioko Island in Equatorial Guinea. The vegetation type in this part of Africa is humid forest (Zwets et al. 2024). Bioko Island (Fig. 1) is of volcanic origin; together with the Sao Tomé and Principe Islands, they are part of the Cameroon Volcanic Line. The altitude of the island ranges from 0 m (sea level) to 3,011 m.a.s.l. (Mount Pico Basile) (Elhag 2016). The climate is the Guinean type, with four seasons: two short dry seasons between two long rainy seasons. Rainfall varies

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from 3,500 mm in the highest parts of the mountain to less than 2,000 mm in the peneplains. The main plant groups are Fabaceae, Orchidaceae, and Poaceae (Velayos et al. 2013). In West-Central Africa, human activities such as logging and agriculture have progressively modified the natural environment. After deforestation, the ground is dominated by fallow-land plant species such as *Acalypha arvensis*, *Chromolaena odorata*, and *Ageratum conizoides*.

Morphological study.—Specimens were studied using a Wild stereo microscope. Drawings were made (under 12–50× magnification) using a camera lucida attached to the microscope and refined in Photoshop 2021 (Adobe Corp.). Macrophotographs were taken using an AmScope MU130 digital camera attached to the microscope. Other photographs were taken in the field with a Canon IXUS camera and in the laboratory with a Nikon D90 camera. The male phallic structures were extracted using conventional techniques from relaxed specimens and then macerated in 8% KOH, manually cleaned, neutralized in dilute acetic acid, and stained in acid fuchsin. The terminologies used for male genitalia description and the female subgenital plate and spermatheca are from Hollis (1971 and 1975) and Randell (1963), respectively.

Measurements.—Measurements were made under the microscope using a graticule eyepiece and a digital stage (Mitutoyo) reading to 0.01 mm. The following measurements were made: P: length of the pronotum in the midline; L: overall length from the tip of the fastigium to the most posterior part of the genitalia, measured in lateral view; Ant: length of the antenna from the scape to the tip of the antenna; IOS: inter-ocular space, measured dorsally ; E-E: maximum width across the eyes measured dorsally; Fast-B, breadth of the fastigium measured from a dorsal view, between the inner edges of the two lateral ocelli; Fast-L, length of the fastigium measured from a dorsal view, anterior to the most anterior portion of the compound eyes; F: maximum length of the hind femur; FD: depth of femur measured as the distance between the two parallel lines running through the dorsal and ventral extremities of the femur, drawn parallel to the long axis of the femur; Ta1, Ta2, Ta3: lengths of each of the three hind tarsal segments; Sp Ext: number of external spines in the hind tibia; Sp Int: number of internal spines in the hind tibia. Measurements and ratios were given as the range of average ± standard error of individual measurements and were also presented after normalization [obtained by dividing the measured value by P (the length of the pronotum)]. The normalized values allowed for a comparison of species of different sizes. The foot formula shows the relative lengths of the three tarsal segments within the total length of the foot and again allows for comparison between different species (Rowell 2005). The foot formula values and the ratios describing sexual dimorphism (i.e., male/female) were calculated from the average values of the sample and not from individual measurements.

Abbreviation of depositories.—

MfN	Museum für Naturkunde, Berlin, Germany
ONC	Personal collection of C. Oumarou Ngoute, Cameroon
RC	Personal collection of C.H.F. Rowell, Switzerland

Results

Taxonomy

Order ORTHOPTERA Olivier, 1789
Superfamily ACRIDOIDEA MacLeay, 1821
Family ACRIDIDAE MacLeay, 1821
Subfamily OXYINAE Brunner von Wattenwyl, 1893

Genus *Pterotiltus* Karsch, 1893

= *Pygostolus* Karsch, 1891 (syn. Karsch 1893)

Type species.—*Pterotiltus impennis* (Karsh, 1891).

Subsequent literature.—Ramme 1929: 313. Johnston 1956: 258. Jago 1964: 190–204. Dirsh 1965: 579. Johnston 1968: 173. Dirsh 1970: 119. Hollis 1975: 226. Rowell 2005: 33–43. Oumarou-Ngoute and Rowell 2024: 127–146. Rowell and Oumarou-Ngoute 2025: 1–104.

Generic diagnosis.—(Slightly modified from Rowell and Oumarou-Ngoute 2025 in terms of the shape of the ventral surface of female subgenital plate). Our modification: ventral surface of female subgenital plate flat, smoothly rounded, or with a medial groove in the posterior part, which is bounded laterally by two slightly inflated ridges not exceeding the posterior edge of the plate. See Rowell and Oumarou-Ngoute (2025) for the complete redescription and diagnosis of the genus.

Pterotiltus bioko Oumarou-Ngoute & Rowell, sp. nov.

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Figs 1–6, Tables 1, 2

Material examined.—Holotype: EQUATORIAL GUINEA, Bioko Island • ♂; Road to Ureka, Reserva Cientifica de la Caldera de Luba, Bioko Island; 03°13'3"N, 008°21'4"E; altitude 1345 m; 15-xii-2023; H. Song, R. Mariño-Pérez, J.B. Linde, B.M. Woo, & C. Oumarou-Ngoute leg.; specimen N°. 8012023D; MfN. Paratype: EQUATORIAL GUINEA, Bioko Island • 1♀; Pico Basile National Park, Bioko Island; 03°23'20"N, 008°29'51"E; altitude 1374 m; 18 December 2023; H. Song, R. Mariño-Pérez, J.B. Linde, B.M. Woo, & C. Oumarou-Ngoute leg.; specimen N°. 7732023D; MfN.

Other material examined.—EQUATORIAL GUINEA, Bioko Island; H. Song, R. Mariño-Pérez, J.B. Linde, B.M. Woo, & C. Oumarou-Ngoute leg. (36♂, 24♀) • 9♂; road to Ureka, Reserva Cientifica de la Caldera de Luba; 03°13'3"N, 008°21'4"E; altitude 1345 m; 15 December 2023; specimens N° 7972023D 7942023D 7962023D 7952023D 7992023D 7982023D 8002023D 8022023D 8032023D; ONC • 1♂; same information as previous; 03°12'57"N, 008°21'11"E; altitude 1370 m; specimen N° 8122023D; ONC • 2♂; same information as previous; 03°20'09"N, 008°35'07"E; altitude 1204 m; specimens N° 7852023D 7862023D; ONC • 9♂, same information as previous; 03°12'7"N, 008°21'4"E; altitude 1192 m; specimens N° 8452023D 8312023D 8332023D 8342023D 8372023D 8322023D 8362023D 8352023D 8462023D; ONC • 3♀; same information as previous; 03°13'3"N, 008°21'4"E; altitude 1345 m; specimens N° 7932023D 7892023D 7902023D; ONC • 3♀; same information as previous; 03°20'09"N, 008°35'07"E; altitude 1204 m; specimens N° 7792023D 7812023D 7832023D; ONC • 10♀; same information as previous; 03°12'7"N, 008°21'4"E; altitude 1192 m; specimens N° 8302023D 8292023D 8222023D 8212023D 8242023D 8272023D 8282023D 8232023D 8252023D 8262023D; ONC • 1♂; same information as previous;, , 03°13'3"N, 008°21'4"E; altitude 1345 m, specimen N° 8382023D; RC • 3♂: Pico Basile National Park, 03°38'53"N, 008°49'45"E; altitude 1374 m; 18

December 2023; specimens N° 7702023D 7712023D 7722023D; ONC • 7♂; Lago Biao, Reserva Cientifica de la Caldera de Luba; 03°21'20"N, 008°37'17"E; altitude 1831 m; 16 December 2023; specimens N° 8082023D 8092023D 8112023D 8072023D 8052023D 8062023D 8042023D; ONC • 2♂; same information as previous; 03°13'3"N, 008°21'4"E; altitude 1345 m ; specimens N° 7842023D 7802023D; RC • 3♀; Pico Basile National Park; 03°38'53"N, 008°49'45"E; altitude 1374 m; 18 December 2023; specimens N° 7742023D 7752023D 7762023D; ONC • 5♀; same information as previous; 03°22'33"N, 008°28'48"E; altitude 1864 m; N° 8392023D 8402023D 8432023D 8422023D 8442023D; ONC • 1♂; same information as previous; ; 03°38'53"N, 008°49'45"E; altitude 1374 m; 18 December 2023; specimen N° 7692023D; ONC • 1♂; Lago Biao, Reserva Cientifica de la Caldera de Luba; 03°21'20"N, 008°37'17"E; altitude 1831 m ; 16 December 2023; specimen N° 8102023D; RC.

Type locality.—Reserva Cientifica de la Caldera de Luba, Bioko Island, EQUATORIAL GUINEA.

Etymology.—Toponymic, referring to Bioko Island, Equatorial Guinea.

Description.—(Figs 1–6, Tables 1, 2). **Male.** Body of small size, average length of body 14.22 mm (Table 1); fastigium of vertex rounded or roughly pentagonal in dorsal view with a medial carina, its tip merging smoothly with frontal ridge. Frons slightly oblique; frontal ridge shallowly sulcate above medial ocelli, obliterated below; antennae longer than the combined length of head and pronotum together; eyes protuberant, inter-ocular space slightly wider than antennae scape. Pronotum dorsally crossed by three deep sulci; medial carina very weak or absent. Space between sulci 2 and 3 almost equal to or slightly wider than metazona in length; metazona short, accounting for less than 25% of the pronotum length (Fig. 3A). Lateral margins of prozona tuberculate in dorsal view, anterior margin of prozona slightly convex, sometimes slightly notched in the midline. Posterior margin of metazona slightly convex and notched in the midline; prosternal process conical, vertical, pointed. Mesosternal space slightly longer than wide, lobes rounded; metasternal space open, about half of mesosternal space; micropterous. Tegmina minute, lobiform, shorter than, reaching, or barely exceeding middle of metathorax but not reaching mesothorax (Fig. 3B). Hind femur slender, 5 times longer than wide (Table 1); 6 to 7 external tibial spines, 8 to 9 internal tibial spines (Table 1), external apical spine present; paired internal tibial spurs longer than external spurs. Tympanum wide, oval or rounded. Last abdominal tergite divided, the hind margin with two small lobiform processes forming a minute furcula, the tips separated by 0.3–0.35 mm (Fig. 3D, E), cercus compressed laterally, slightly incurved, slightly shorter than or exceeding the tip of the subgenital plate, with acute apex. Supra-anal plate triangular in dorsal view with acute or slightly rounded apex; proximally in

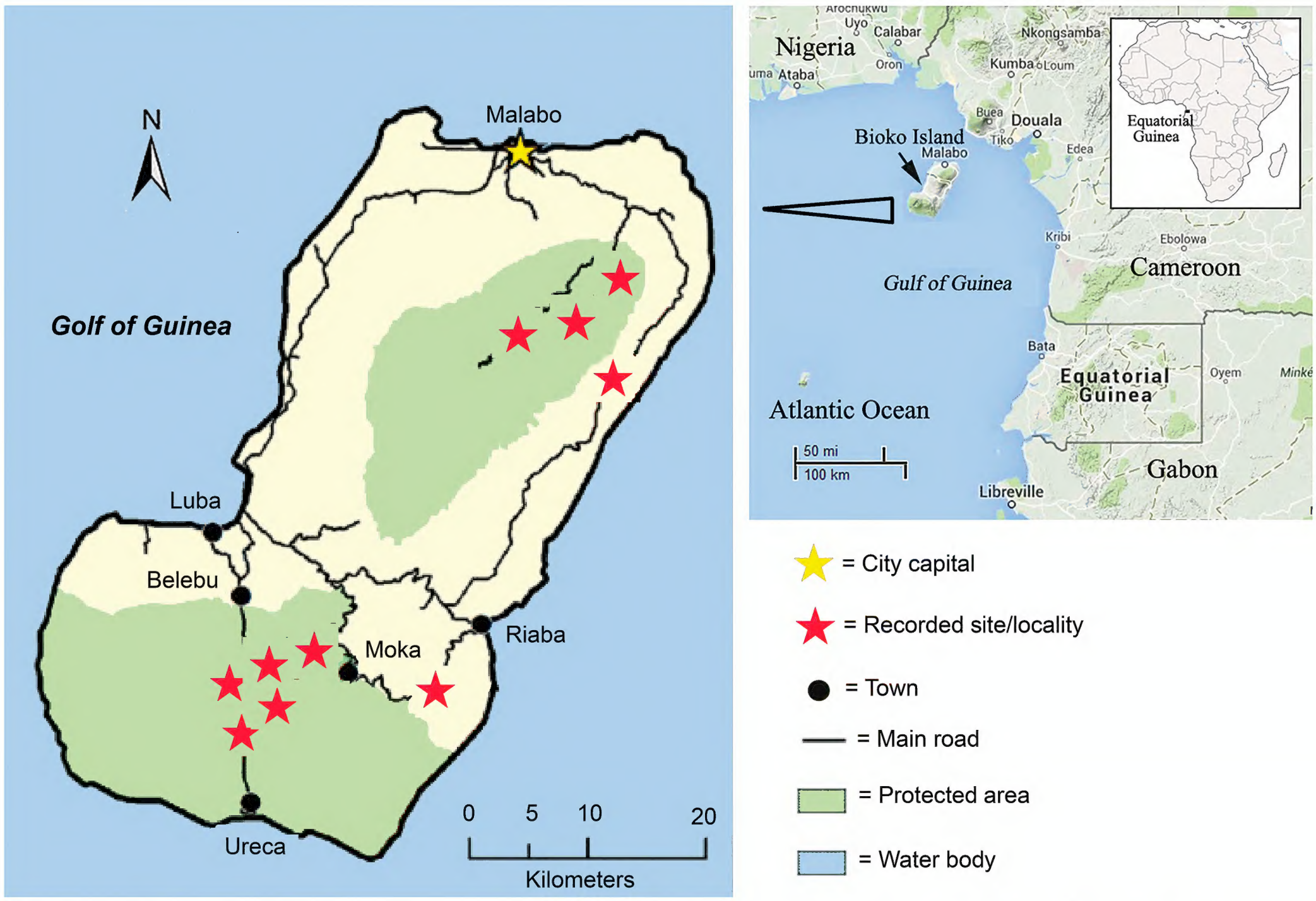

Fig. 1. Collecting sites of *Pterotiltus bioko* **sp. nov.** at Bioko Island in Equatorial Guinea. Vegetation information from Lin et al. 2015 and Forrest et al. 2017.

Table 1. Measurements of *Pterotiltus bioko* **sp. nov.** P: length of the pronotum in the midline; L: overall length from the tip of the fastigium to the most posterior part of the genitalia, measured in lateral view; Ant: length of antenna from the scape to the tip of antenna; IOS: interocular space measured dorsally; E-E: maximum width across the eyes measured dorsally; Fast-B: breadth of fastigium measured in dorsal view between the inner edges of the 2 lateral ocelli; Fast-L: length of fastigium, measured in dorsal view anterior to the most anterior portion of the compound eyes; F: maximum length of the hind femur; FD: depth of femur measured as the distance between the two parallel lines running through the dorsal and ventral extremities of the femur drawn parallel to the long axis of the femur; Ta1, Ta2, Ta3: lengths of each of the three hind tarsal segments; Sp Ext: number of external spines in the hind tibia; Sp Int: number of internal spines in the hind tibia. The foot formula shows relative lengths of the three tarsal segments to the total length of the foot.

Male															
Dimensions in mm	P	L	Ant	IOS	E-E	Fast-B	Fast-L	F	FD	Ta1	Ta2	Ta3	Ta1-3		External spines	Internal spines
Minimum	2.68	12.75	7.35	0.34	2.70	0.79	0.45	8.04	1.84	0.93	0.48	1.09	2.51		6	8
Maximum	3.36	15.87	10.35	0.52	3.47	1.17	0.85	10.61	3.13	1.51	0.86	2.02	4.09		7	9
Average	2.98	14.22	9.09	0.43	3.23	0.98	0.61	9.88	2.09	1.23	0.63	1.73	3.60	Median	7	8
Standard error	0.03	0.12	0.15	0.01	0.01	0.01	0.01	0.11	0.03	0.02	0.01	0.02	0.06			
N	31	31	31	31	31	31	31	31	31	31	31	31	31		31	31
Foot formula										34%	18%	48%				
Ratios	L/P	Ant/P	IOS/P	E-E/P	Fast-B/P	Fast-L/P	F/P	FD/P	Ta1/P	Ta2/P	Ta3/P	Ta1-3/P	F/FD	Ta1-3/F		
Minimum	4.07	2.39	0.10	0.96	0.25	0.14	2.92	0.63	0.33	0.15	0.39	0.89	2.93	0.29		
Maximum	5.27	3.57	0.17	1.20	0.43	0.30	3.79	0.99	0.48	0.28	0.69	1.37	5.27	0.40		
Average	4.78	3.05	0.14	1.08	0.33	0.20	3.32	0.70	0.41	0.21	0.58	1.21	4.76	0.36		
Standard error	0.05	0.05	0.01	0.01	0.01	0.01	0.03	0.01	0.01	0.01	0.01	0.01	0.07	0.01		
N	31	31	31	31	31	31	31	31	31	31	31	31	31			
Female																
Dimensions in mm	P	L	Ant	IOS	E-E	Fast-B	Fast-L	F	FD	Ta1	Ta2	Ta3	Ta1-3		External spines	Internal spines
Minimum	2.99	15.09	7.82	0.46	3.25	1.06	0.56	10.61	2.06	1.24	0.49	1.81	3.69		6	8
Maximum	3.99	20.24	10.24	0.93	4.05	1.56	0.98	13.45	2.93	1.89	0.98	2.60	5.33		7	9
Average	3.61	18.11	8.99	0.63	3.75	1.34	0.76	12.26	2.56	1.57	0.82	2.18	4.59	Median	7	9
Standard error	0.05	0.29	0.17	0.02	0.04	0.02	0.01	0.01	0.03	0.03	0.02	0.04	0.19			
N	24	19	24	24	24	24	24	24	24	24	24	24	24		24	24
Foot formula										34%	18%	48%				
Ratios	L/P	Ant/P	IOS/P	E-E/P	Fast-B/P	Fast-L/P	F/P	FD/P	Ta1/P	Ta2/P	Ta3/P	Ta1-3/P	F/FD	Ta1-3/F		
Minimum	4.47	2.14	0.12	0.93	0.27	0.14	2.99	0.62	0.34	0.16	0.50	1.03	4.38	0.32		
Maximum	5.50	2.66	0.25	1.15	0.42	0.25	3.95	0.86	0.51	0.28	0.68	1.44	5.16	0.40		
Average	5.01	2.47	0.17	1.04	0.37	0.21	3.39	0.70	0.43	0.22	0.60	1.27	4.79	0.37		
Standard error	0.05	0.03	0.01	0.01	0.01	0.01	0.04	0.01	0.01	0.01	0.01	0.01	0.04	0.01		
N	24	19	24	24	24	24	24	24	24	24	24	24	24			
Sexual dimorphism																
Dimensions in mm	P	L	Ant	IOS	E-E	Fast-B	Fast-L	F	FD	Ta1	Ta2	Ta3	Ta1-3		External spines	Internal spines
Male/female Averages (or Medians)	0.82	0.78	0.98	0.68	0.86	0.73	0.80	0.80	0.81	0.78	0.76	0.79	0.78		1	0.88
Normalized on 82%	1	0.95	1.19	0.82	1.04	0.89	0.97	0.97	0.98	0.95	0.92	0.96	0.95			
Male/female Ratios		0.95	1.23	0.82	1.03	0.89	0.95	0.97	1	0.95	0.95	0.96	0.95			

the plate there is a short medial longitudinal groove bounded posteriorly by a curved transverse ridge that extends across the width of the plate (Fig. 3D). Phallic complex (Figs 4A, B, 5A, B) of large size for the genus, ectophallic membrane coarsely stippled and obscures most of the sclerites; epiphallus with large forwardly curved blade-like outer lophi; inner lophi absent (Figs 4C, D, 5C, D). Anterior processes of epiphallus well developed, axially large and rounded, ancorae absent (Figs 4C, D, 5C, D). Oval sclerites large with pronounced pointed tubercles on their ventral surfaces (Fig. 4F); valvular plate foliose, showing large lobes that dorsally join the cingulum by a well-prolonged arch. Cingular apodemes dorsally blade-like, incurved (Fig. 5E); cingular ramus laterally large, prolonged and rounded (Fig. 5F). Endophallic apodemes dorsally slender, laterally large, spatula shaped, with robust, long and pointed gonopore processes; endophallic process terminates on the ventral aedeagal sclerite which forms a part of the ventral aedeagal valve (Fig. 5G).

Female. In general, similar to the male. Female particularities: body of small to medium size, average L = 18.11 mm (Table 1). Lateral margins of prozona less tuberculate in dorsal view; last abdominal tergite short, divided, but the hind margin without a furcula. Cercus robust, very slightly compressed laterally almost

conical, straight or very slightly excurved, equaling or slightly exceeding the supra-anal plate, with acute apex; supra-anal plate triangular in dorsal view, elongated, lingulate, with rounded apex. Ovipositor valves smooth, slender, long, with rounded apex; subgenital plate ventrally conical, distally with a medial groove bounded laterally by two inflated ridges, not projecting posteriorly beyond the posterior edge of the plate. Egg-guide slender, rod-like, long, about half of the ventral ovipositor valves in length (Fig. 3C). Dorsally, subgenital plate smoothly triangular, terminated by a straight and pointed egg guide at the tip; a pair of large sclerotized columellae that are prolonged by a pair of less sclerotized stripes (Fig. 6A). Bursa copulatrix large, dorsally with a longitudinal groove separating the bursa into two somewhat distinct lobes (Fig. 6B, C), spermathecal duct long; spermatheca with a hooked terminal ampulla and a developed lateral diverticulum (Fig. 6B, D).

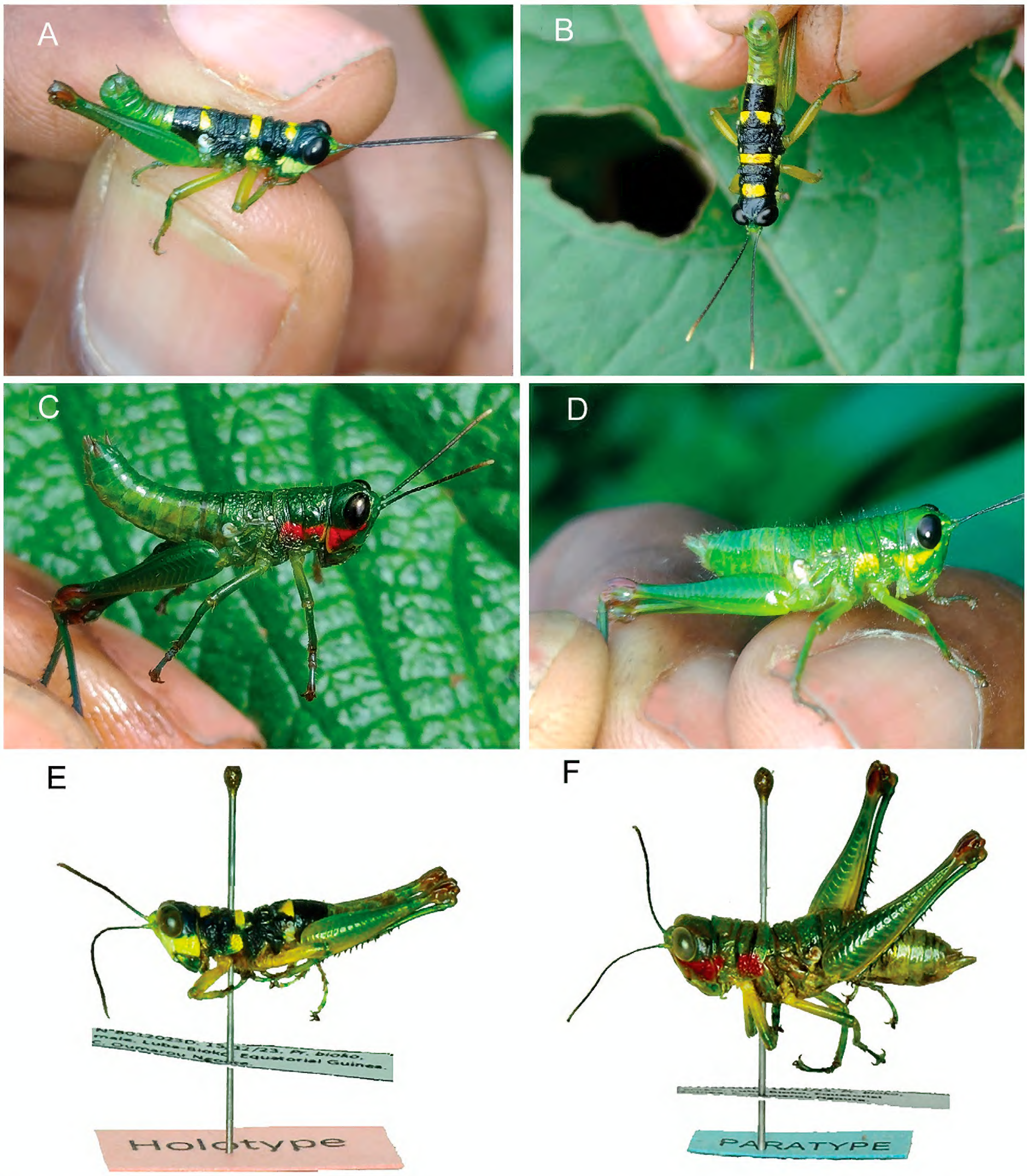

Fig. 2. Habitus of *Pterotiltus bioko* **sp. nov. A.** Male lateral view, road to Ureka, Reserva Cientifica de la Caldera de Luba, Bioko Island, 15-xii-2023; **B.** Male dorsal view, same data than A; **C.** Female with red patches, lateral view, same data than A; **D.** Female with yellow patches, lateral view (maybe newly molted female), Pico Basile National Park, Bioko Island, 18-xii-2023; **E.** Holotype, male for MfN, lateral view; **F.** Paratype, female for MfN, lateral view.

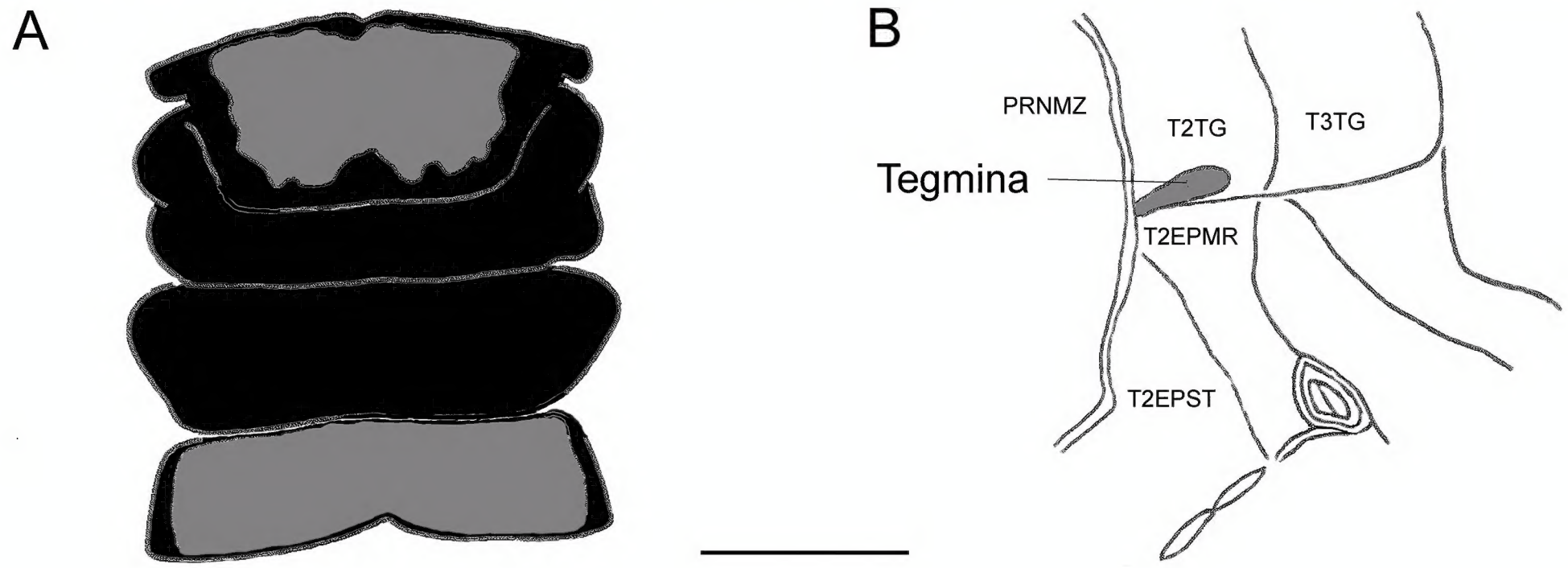

Fig. 3. Male pronotum, tegmina, terminalia, and female sub-genital plate (ventral view) of *Pterotiltus bioko* **sp. nov. A.** Male pronotum showing coloration patterns; **B.** Male tegmina; **C.** Female sub-genital plate ventral view, showing the distally medial groove bounded laterally by two slightly inflated conical edges; PRNMZ: metazona of pronotum; T2TG: mesothoracic tergite; T2EPMR: mesothoracic epimeron; T2EPST: mesothoracic episternum; T3TG: metathoracic tergite. **D.** Male terminalia; **E.** Macro-photo of furcula, male. Scale bars: 1 mm.

Sexual dimorphism.—(Table 1) The average length of pronotum (P) of males is 82% of that of females. The male antennae are longer than those of females (after normalization, the ratio of male/female Ant = 1.23). In the males, the interocular space (IOS) is smaller than in the females (male/female IOS = 0.68, and 0.82 after normalization). Breadth of fastigium (Fast-B) is slightly shorter in males than in females (male/female Fast-B = 0.73, and 0.89 after normalization). There are generally less internal tibial spines in males than in females (male/female medians = 0.82) (Table 1). After normalization, the ratios of the various other body dimensions are closely similar in both sexes (Table 1).

Coloration.—(Fig. 2A–F). **Male.** Body multicolored, predominantly black; scape and pedicel of antennae light green. First two or three segments of flagellum green, tip white or light green, the remaining segments brown. Fastigium of vertex green or green-black; vertex black, eyes black fading to brown when dried. Frons yellow-white; genae black in upper half and yellow-white or yellow in inferior half; clypeus, labrum, and palps green with whiter mottling. Pronotal disc black with a wide yellow patch at the anterior margin of prozona; metazona dorsally yellow; tegmina yellow; mesothoracic and metathoracic tergites black. Pronotal lobes black with two yellow patches, one in the antero-basal edge joining the yellow tripe of the genae, another at the postero-basal

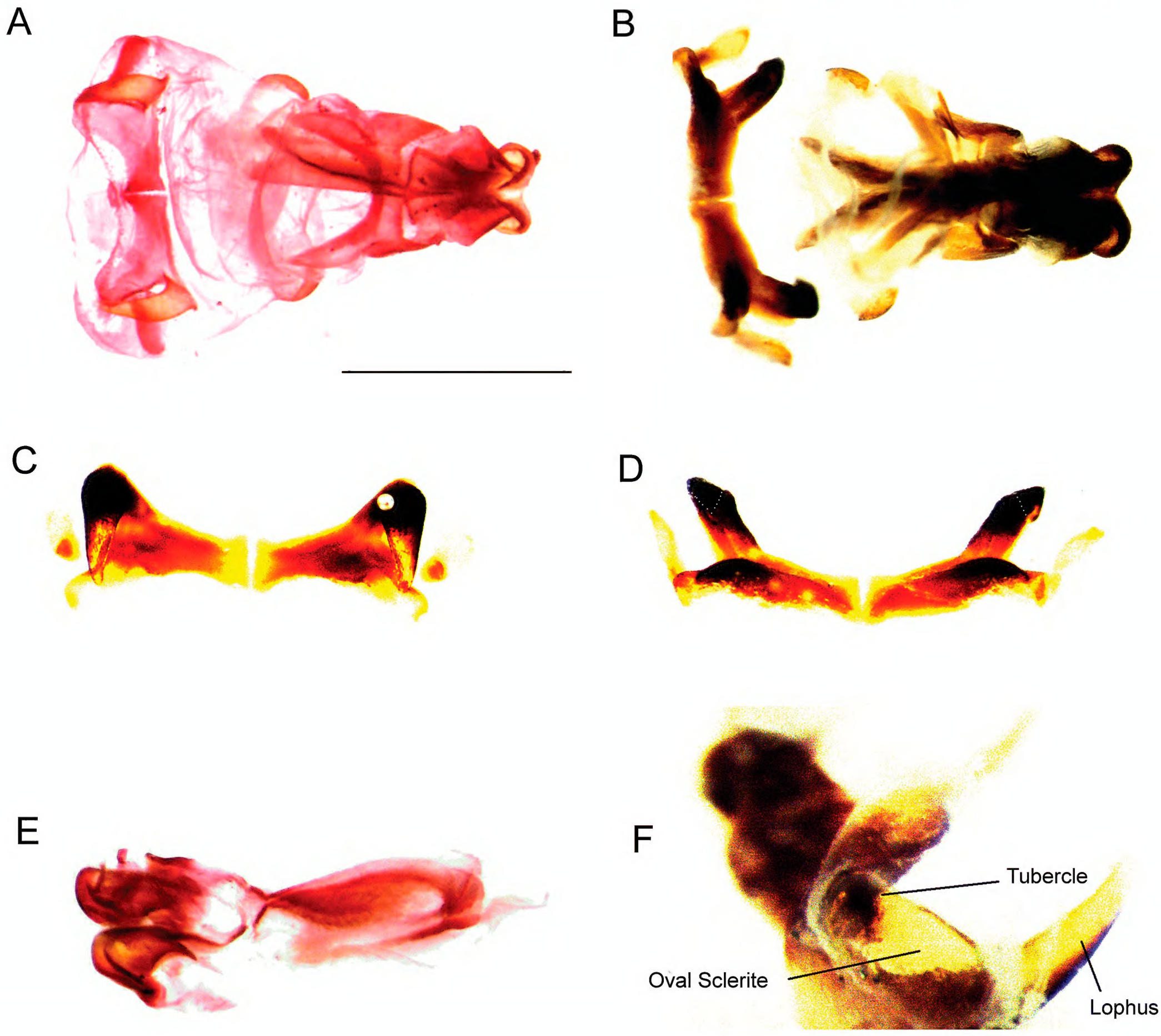

Fig. 4. Macro-photos of the phallus of *Pterotiltus bioko* **sp. nov. A.** Phallus, dorsal view, colored; **B.** Phallus, dorsal view, not colored, ectophallic membrane extended; **C.** Epiphallus, dorsal view, not colored; **D**. Epiphallus, axial view, not colored; **E.** Endophallus, latero-dorsal view, colored; **F.** Oval sclerite of epiphallus showing tubercle. Scale bars: 1 mm.

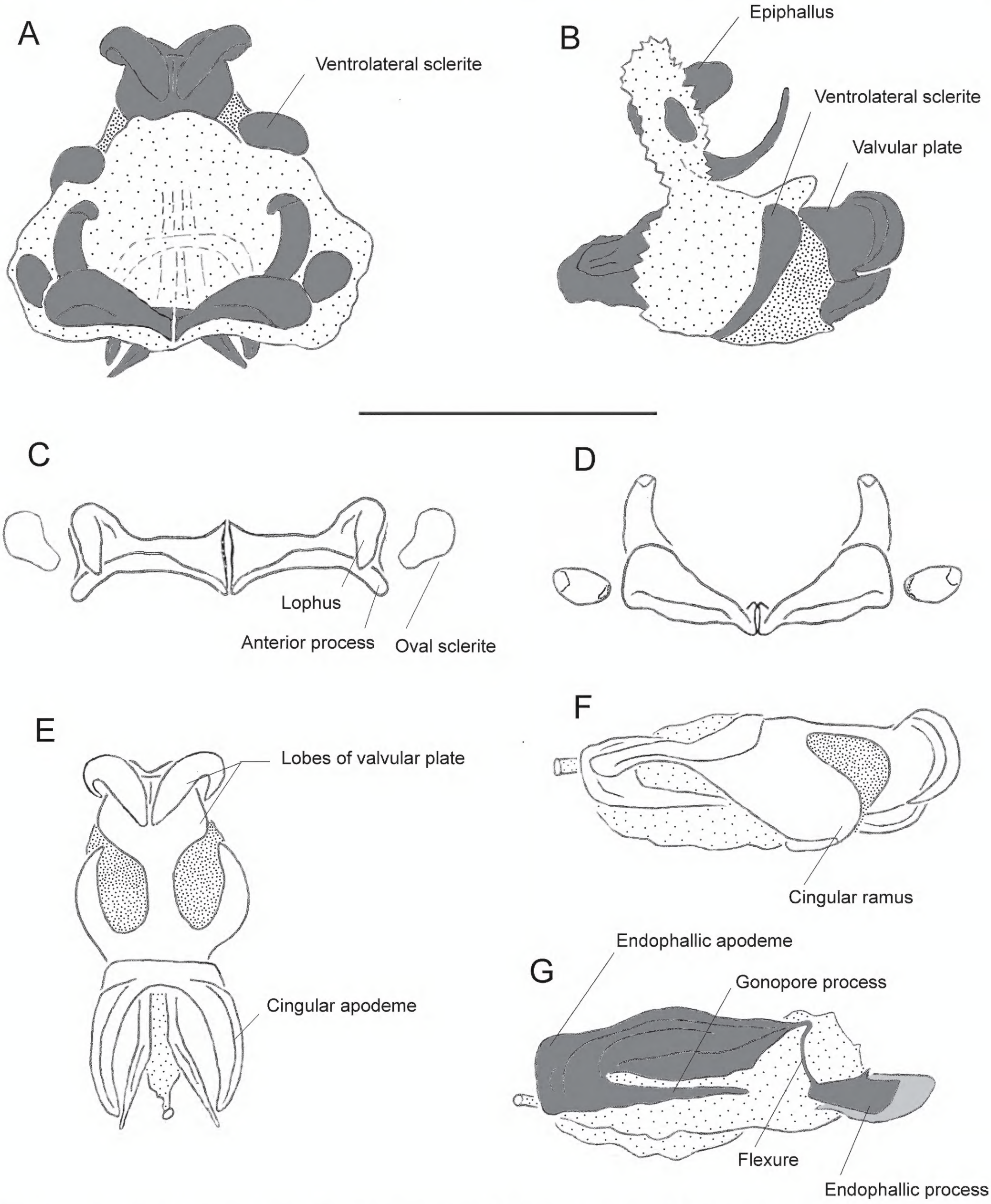

Fig. 5. Drawings of the phallic complex of *Pterotiltus bioko* **sp. nov. A.** Phallus, dorsal view; **B.** Phallus, lateral view; **C.** Epiphallus, dorsal view; **D.** Epiphallus, axial view; **E.** Phallus without epiphallus and ventrolateral sclerite in dorsal view, showing the valvular plate and apodemes of cingulum; **F.** The same in lateral view; **G.** Endophallus lateral view. Scale bar: 1 mm.

Table 2. Tabular key to the Bioko Island species of the genus *Pterotiltus*, including the mainland species close to *P. bioko* **sp. nov.**

Characters	*Pterotiltus bioko* **sp. nov.**	*Pterotiltus apicalis* **(female lectotype)**	*Pterotiltus ngoylaensis*
Size of the body	Small size for the genus. Average L = 14.22 mm (12.75–15.87 mm) in male and 18.11 mm (15.09–20.24 mm) in female (Table 1).	Medium size for the genus. Length of body 22 mm (Bolivar 1905).	Medium size for the genus. Average L = 20.30 mm (18.30–22.14 mm) in male and 24.40 mm (24.11–24.44 mm) in female (table 1 in Oumarou-Ngoute and Rowell 2024).
Coloration	Male. Body predominantly black; pronotum black with wide yellow patches; femur green or orange-green, hind knee brown, hind tibiae and tarsi light-green, abdominal segments green or orange-green (Fig. 2A, B, E). Female. Body green (fading brown when dried) with red or yellow stripes below eyes that continuously widen in two patches in the pronotal lobes; head and pronotum green; femur green, yellow-green or orange-green; tibiae and tarsi green; hind knee brown; abdominal segments green (Fig. 2C, D, F).	Male unknown. Female. Body blackish brown; head and pronotum (except for the large medial transverse surface) and first abdominal segment (but not the apical half) yellow; feet olive yellow; hind knee red; hind tibia olive except for blue-black spines; condyle reddish with a small brown ring underneath; posterior margin of 6th abdominal segment and all more-distal segments of abdomen red (Fig. 7) (fig. 15 in Rowell and Oumarou-Ngoute 2025).	Male and female. Body predominantly green (dark olive brown when dried); vertex blue-black with black longitudinal bands either side of the midline. Pronotal disc black with two longitudinal pale bands; hind femur green with red genicular lobe; tibia and tarsi green; 1st to 3rd abdominal segment black with white yellow bands, 4th segment green, slightly white in dorsal view; the remaining abdominal segments green (fig. 2A, B in Oumarou-Ngoute and Rowell 2024).
Male genitalia	Oval sclerites of epiphallus large with pronounced pointed tubercles on their ventral surfaces (Fig. 4F); endophallic apodemes laterally large, spatula shaped, with robust, long, and pointed gonopore processes; pronounced flexure (Fig. 5G).	Male unknown.	Oval sclerites of epiphallus with two small tubercles on their ventral surfaces (fig. 4H in Oumarou-Ngoute and Rowell 2024); endophallic apodemes laterally large, with robust and short pointed gonopore processes; less pronounced flexure (fig. 4F in Oumarou-Ngoute and Rowell 2024).

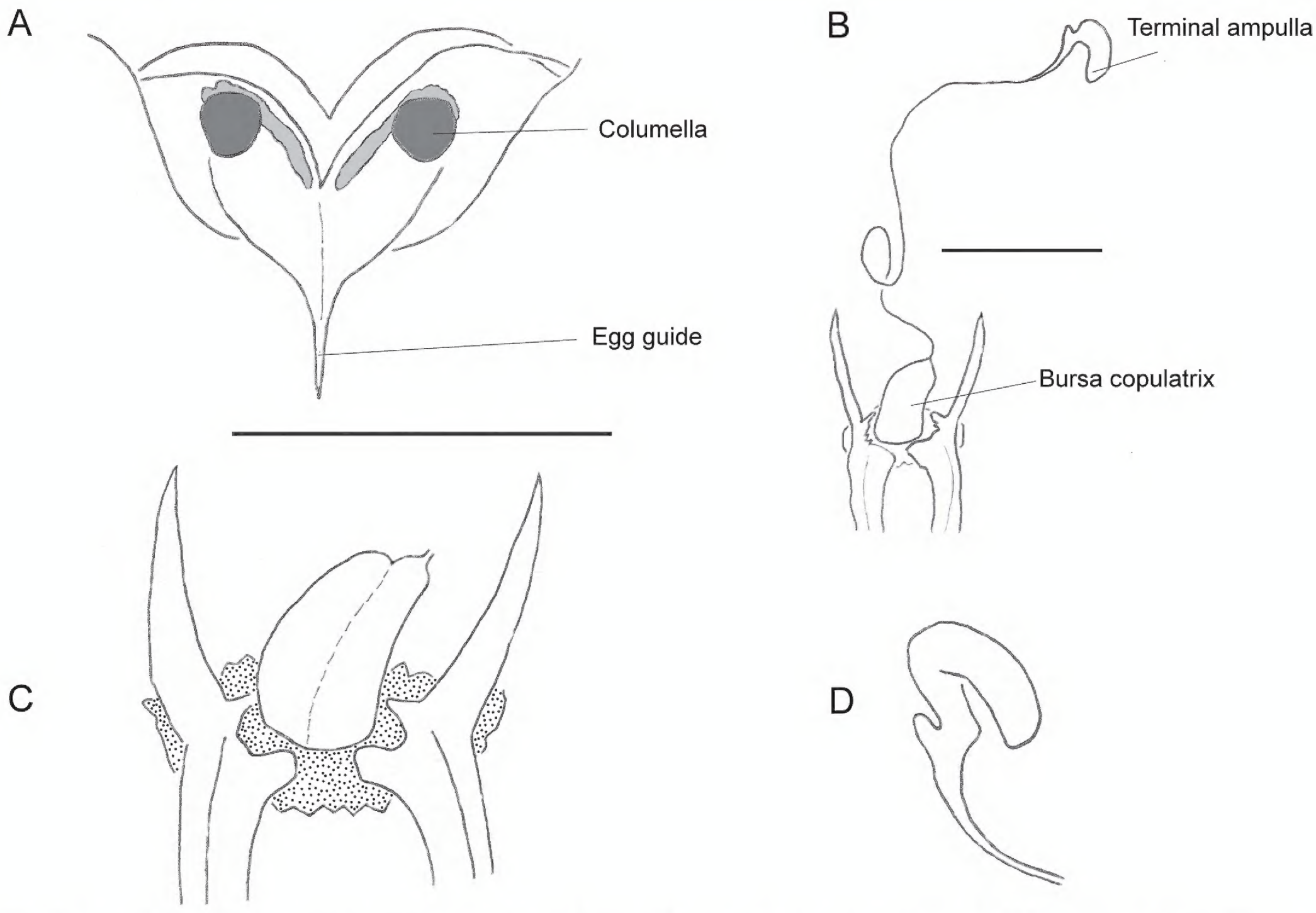

Fig. 6. Spermatheca and female sub-genital plate (dorsal view) of *Pterotiltus bioko* **sp. nov. A.** Subgenital plate, dorsal view; **B.** Spermatheca with bursa copulatrix, spermathecal duct, and terminal ampulla; **C.** Bursa copulatrix; **D.** Terminal ampulla. Scale bars: 1 mm.

edge behind the third sulci of pronotum (in some specimens, the last yellow patch can join dorsally the yellow metazona to form a single stripe). Prosternum, mesosternum, and metasternum light-green; fore and middle femora orange-green, tibiae and tarsi orange-green fading green-brown or brown when dried. Hind femora orange-green; hind knee brown, upper lobes of hind knee brown, lower lobes brown-green. Hind tibiae and tarsi light green with black spines; tergite of first abdominal segment black, with paired yellow patches at the posterior margin; tergites 2 and 3 black; tergite 4 yellow-green or green or orange-green; all other abdominal segments green or orange-green.

Female. We observed two different female morphotypes: All are green but some (the majority) have red patches in pronotal lobes (Fig. 2C), the rest have yellow patches. The yellow-patched females looked newly molted (Fig. 2D), suggesting that the color difference is developmental and that mature females are all red. Body multicolored, predominantly green, fading brown when dried. Scape and pedicel of antennae green; flagellum brown with white or light brown tip. Fastigium of vertex and vertex green; eyes black fading to light yellow or brown when dried. Frons green, clypeus, labrum, and palps green. Genae green with a red or yellow stripe, narrow below eyes, widened toward the pronotal lobes, and continuous in two patches in the pronotal lobes. Pronotum disc green; tegmina yellow; mesothorax and metathorax green, prosternum, mesoternum, and metasternum yellow-green or light-green. Fore and middle femora proximally yellow-green or orange-green; distally light-green. Tibiae and tarsi light-green; hind femora externally green, internally yellow-green or orange-green. Hind knee brown; hind tibiae and tarsi green with black spines. All abdominal segments green.

Diagnosis.—Of small size relative to the rest of the genus, with average L = 14.22 mm in male and L = 18.11 mm in female. Body predominantly black in male with wide yellow patches in pronotum, female genae green with a red or yellow stripe, narrow below eyes, widened toward the pronotal lobes, and continuous in two patches in the pronotal lobes, abdominal segments green (Table 2); different to *P. apicalis* (Fig. 7). Metazona short, accounting for less than 25% of the pronotum length; tegmina minute, lobiform, shorter than, reaching, or barely exceeding the middle of the metathorax but not reaching the mesothorax. Furcula small, lobiform, the tips separated by 0.3–0.35 mm. Oval sclerites of epiphallus large, with pronounced pointed tubercles on their ventral surfaces; endophallic apodemes dorsally slender, laterally large, spatula shaped, with robust, long, and pointed gonopore processes; pronounced flexure (Table 2).

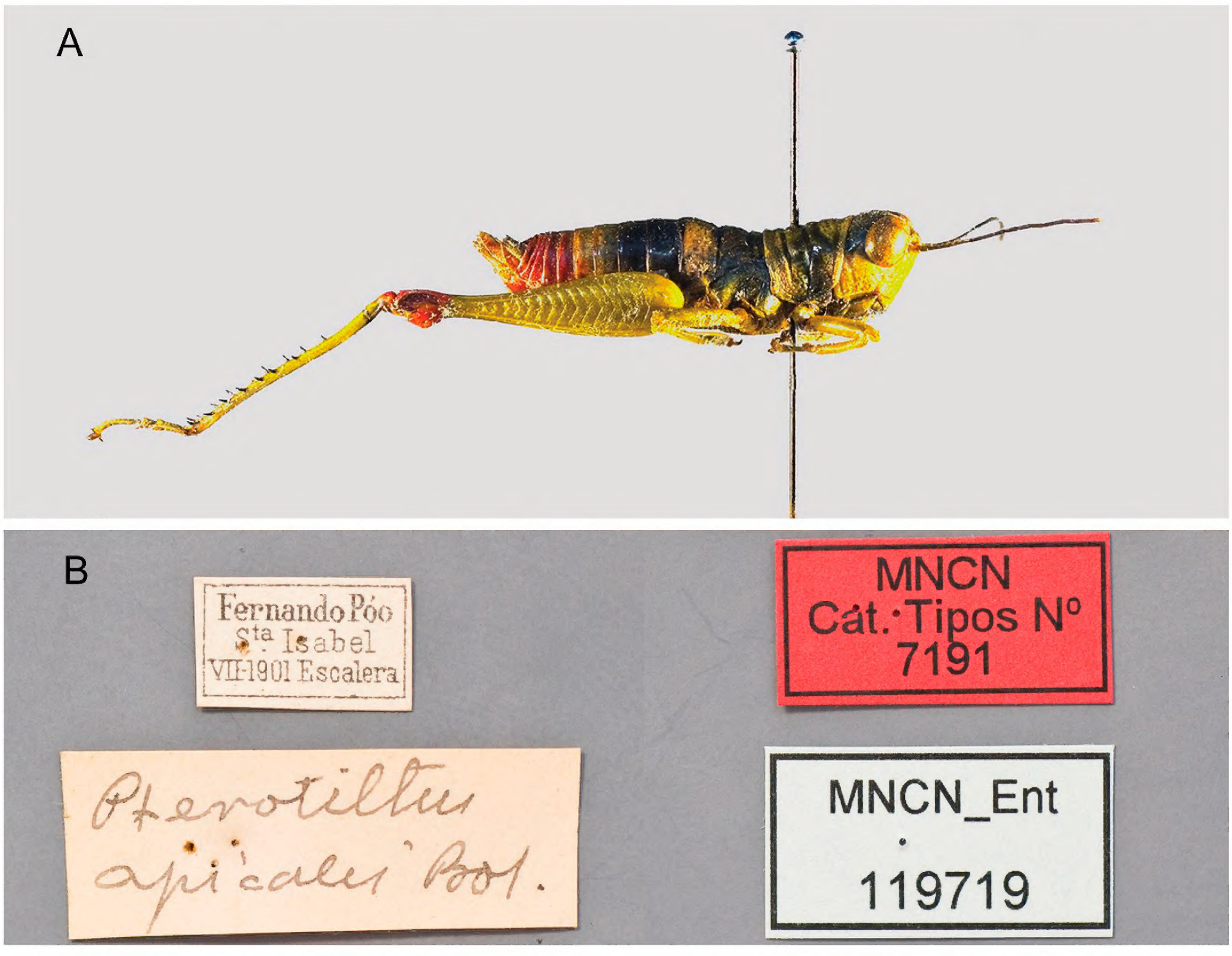

Fig. 7. Habitus of *Pterotiltus apicalis* Bolivar 1905, female lectotype from the Madrid (MNCN) Museum. **A.** Female habitus; **B.** Labels. Photo credit: Dr. Mercedes Paris.

Distribution.—(Fig. 1). Endemic to Bioko Island, Equatorial Guinea. Near Bacake Grande: 03°36'13"N, 008°53'20"E, 17-xii-2023, 165 m. Road to Riaba: 03°19'59"N, 008°42'30"E, 17-xii-2023, 724 m. Lago Biao, Reserva Cientifica de la Caldera de Luba: 03°21'20"N, 008°37'17"E, 16-xii-2023, 1831 m. Road to Ureka, Reserva Cientifica de la Caldera de Luba: 03°12'57"N, 008°21'11"E, 15-xii-2023, 1370 m; 03°12'7"N, 008°21'4"E, 15-xii-2023, 1192 m; 03°21'45"N, 008°35'06"E, 15-xii-2023, 1345 m; 03°20'09"N, 008°35'07"E, 15-xii-2023, 1204 m. Pico Basile National Park: 03°22'33"N, 008°28'48"E, 18-xii-2023, 1864 m; 03°24'22"N, 008°31'5"E, 18-xii-2023, 897 m; 03°38'53"N, 008°49'45"E, 18-xii-2023, 1374 m (Fig. 1).

Status of taxonomic materials.—Good. Both sexes of the species are known; adequate numbers of specimens available in the field on Bioko Island; modern localities are known. Least Concern (LC) on the IUCN Red List.

Key to the species of *Pterotiltus*

Modified and completed from the key to the species in the review of the genus (in Rowell and Oumarou-Ngoute 2025).

1 Hind knee blue-black or black in lateral view **2**
1′ Hind knee red or brown in lateral view **3**
2 Antennae black with white tips. Dorsum of pronotum black with ~ 4–6 pale spots..... ***Pterotiltus hollisi* Rowell, 2005** (S. & W. Uganda)
2′A Antennae green basally, flagellum red. Dorsum of head and thorax blue and red..... ***P. campoensis* Oumarou-Ngoute & Rowell, 2024 (S. Cameroon)**
2′B Antennae brownish green; upper frons, genae, dorsum of pronotum black; metathoracic, tergum bright yellow, small montane species.... ***P. inuncatus* (Karsch, 1892)** (northern race) (N.W. Cameroon; E. Nigeria)
3 Hind knee brown **4**
3′ Hind knee red **5**
4 Head dark olive green, frons and genae yellow in female, femora of fore and middle legs red, hind femur green, hind tibia blue, apex of abdomen yellow-green (male unknown) ..... ***P. giorgii* Ramme, 1929** (N. Central DR Congo)
4′A Head black, frons and genae white; thorax and 1st abdominal tergite uniform light brown, head black and white, abdomen and legs green..... ***P. occipitalis* Ramme, 1929** (Cameroon, Northern D.R. Congo, W. Uganda)
4′B Head dark greenish brown, genae behind eye black, below eye white. Frons white with green mottle. Otherwise coloration only black or green..... ***P. sobrius* Rowell & Oumarou-Ngoute, 2024** (C. & W. Cameroon)
4′C Head black. Frons and genae yellow or yellow-white in male; dorsum of pronotum in male black with two yellow patches. Female green, with a narrow red stripe below eyes that continues in two red patches on the pronotal lobes ..... ***P. bioko* Oumarou-Ngoute & Rowell, sp. nov.** (Bioko Island, Equatorial Guinea)
5 Hind knees red/brown, antennae mostly black..... **6**
5′A Hind knees red/brown, antennae mostly brown..... **7**
5′B Hind knees red, antennae solid red, no pale tips..... **8**
6 Antennae black; frons and genae white; hind femora green with prominent darker chevron markings; hind tibia blue green; abdominal apex red; male furcula replaced by a vertical medial process ..... ***P. impennis* (Karsch, 1891)** (Cameroon; Nigeria)
6′A Antennae black with minute pale tips; head, thoracic, and most abdominal tergites black, metazona yellow or white. Hind femora green, hind tibia pale blue; abdominal apex red..... ***P. miniatulus* Karsch, 1893** (N.E. Ghana, N.W. Togo)
6′B Antennal flagellum shiny black, tips unknown; frons and genae yellow, hind tibia green; abdominal tip red ..... ***P. nigroantennatus* Bolívar, 1908** (Central D.R. Congo)
6′C Antennae black with prominent white tips (fading in dried specimens); frons and genae white, head and thorax black, strongly tinged with blue in fresh specimens, apex of abdomen red; polymorphic for male furcula/median tubercle..... ***P. coeruleocephalus* Bolívar, 1905** (W. Cameroon, E. Nigeria)
6′D Antennal flagellum black basally, tip segments shading to light brown; in fresh specimens compound eye with a violet tint; legs and apex of abdomen green; hind tibia dark green; large, robust species..... ***P. ngoylaensis* Oumarou-Ngoute & Rowell, 2024** (E. Cameroon)
7 Antennae brown, femora of pro- and meso-thoracic legs red, hind tibia black..... ***P. biafrensis* Rowell & Oumarou-Ngoute, 2024** (coastal Rio Muni, Equatorial Guinea).
7′A Antennae brown, small yellow tips, hind femur green but red at base; hind tibia blue-green; abdominal apex red ..... ***P. femoratus* Ramme, 1929** (S.W. Cameroon)
7′B Antennae brown, white tips; hind femur and tibia green, condyle red; female abdomen red; (Male unknown)..... ***P. apicalis* Bolívar, 1905** (Bioko Island, Equatorial Guinea)
7′C Antennae light greenish brown; metathoracic tergite and abdominal tergites 1–4 bright yellow or red, frons and genae white; small montane species ..... ***P. inuncatus* (Karsch, 1892)** (southern race) (S.W. Cameroon)
7′D Antennae light brown (tip color unknown); frons and genae light brown; labrum and clypeus of female red; legs green, hind knee reddish brown, hind tibia olive; apex of abdomen red in female, perhaps in male too; (male coloration uncertain) ..... ***P. berlandi* Ramme, 1929** (Rio Muni, Equatorial Guinea/Gabon)
8 Antennae red, frons and genae white; male abdomen tip red (female unknown) ..... ***P. rubroantennatus* Ramme, 1929** (W. Cameroon)
8′ Antennae red, frons white with green mottle; abdomen tip green, legs green, hind tibia blue-green with red condyle ..... ***P. erythrocerus* Rowell & Oumarou-Ngoute, 2024** (Cameroon)

Discussion

Pterotiltus bioko **sp. nov.** is among the smallest species of the genus, with the average length of body in males being 14.22 mm compared to 14–22 mm in the genus (Rowell and Oumarou-Ngoute 2025). The tegmina of this new species are extremely reduced, represented only by small ridges of integument not extending beyond the hind margin of the mesothoracic segment. The above-cited external characters, as well as the shape of the ventral surface of the female subgenital plate of this new species, which shows distally two slightly inflated ridges (but not projecting posteriorly beyond the posterior edge of the plate), are reminiscent of the genus *Parapterotiltus*. However, the structures of the male and female genitalia in the examined specimens of *P. bioko* are clearly those of *Pterotiltus*. The phallic complex is of large size; the valvular plate of the phallus is foliose; the epiphallus show the long, slender, blade-like, and curved outer lophi; well-developed anterior processes; the spermatheca has a hooked terminal ampulla, a developed lateral diverticulum, and the bursa copulatrix is large. Based on these characters, we classified this new Oxyinae species in the genus *Pterotiltus*.

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